INSTRUCTION MANUAL

ISSUE B

Transifier 1024-A

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KAY ELECTRIC COMPANY

MAPLE AVENUE • PINE BROOK, N. J. • CAPITAL 6-4000

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CAUTION: THESE ARE THE MAXIMUM D.C. VOLTAGE LIMITS OF THE 1024-A.

INPUT ± 3 VOLTS

OUTPUT ± 10 VOLTS

EXCEEDING THESE LIMITS, OR WORKING WITH HIGH-LEVEL C-W OR PULSE SIGNALS MAY RESULT IN TRANSISTOR DAMAGE.

SEE ADDENDUM AT REAR OF BOOK

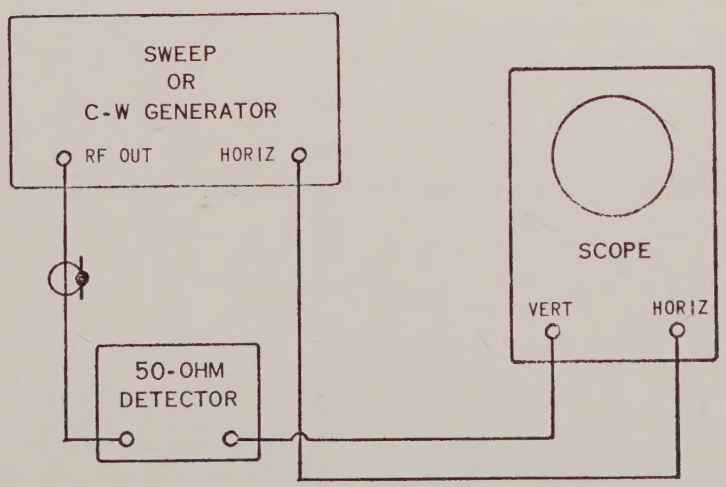


FIG. 1, OUTPUT REFERENCE LEVEL

INTRODUCTION.

The Transifier is an all-transistorized, wide-band audio through VHF amplifier. It provides a gain of 30 db over the frequency range of 200 cps to 300 mc. The Transifier regulated power-supply is self-contained.

This handy amplifier has many applications in the fields of communications, telemetery, instrumentation. In conjunction with a signal source, it may be used to trouble-shoot or otherwise investigate wide-band devices. It provides an excellent preamplifier for wide-band oscilloscopes (including sampling scopes) and audio through VHF amplifiers. Many other applications where a self-contained, wide-band amplifier is required are served by the Transifier.

The Transifier circuitry has been carefully designed to provide an output which is essentially flat across the entire range being used. Characteristic input and output impedances of 50 ohms make this amplifier compatible with any 50-ohm system. Matching circuits may be used to incorporate the instrument into other systems.

SPECIFICATIONS.

Gain: 30 db ±0.5 db.
Frequency Range: 200 cps to 300 mc.
Maximum Output Voltage: 0.5 volts rms.
Flatness: ±0.5 db, 500 cps to 300 mc.
3 db down at 200 cps.
Noise Figure: Less than 13 db.
Rise Time: Approximately 1.5 ns.
Input Impedance: 50 ohms.
Output Impedance: 50 ohms.
VSWR: Less than 1.3 to 300 mc.
Power Supply: Input approx. 6 watts, 117 - 220 volts (±10%), 50 - 60 cps. B^+ electronically regulated.
Dimensions: 7¾" x 4¾" x 5¼".
Weight: 5½ lb.

OPERATING INSTRUCTIONS.

The Transifier provides a gain of 30 db from 200 cps to 300 mc provided that the input signal does not exceed 30 db below 0.5 volt rms. The input signal fed into the RF IN jack must be at an impedance of 50 ohms. The output may be taken from the RF OUT jack again at an impedance of 50 ohms, allowing the Transifier to be inserted directly into a 50-ohm line with no losses due to mismatch.

CHECK-OUT PROCEDURE.

The information given in this section will enable you to check the general operation of the Transifier 1024-A. This procedure can be useful when a periodic check-out is desired or when the instrument is initially received. Noise Figure and VSWR measurements are not included in this section. If you desire to check these specifications, you can obtain the best results by following the directions that accompany the measuring device you intend to use.

Equipment Required:

Oscilloscope, DC to 300 kc response.

Sweep or C-W Generator, 100 kc to 300 mc range.

Audio Frequency Oscillator, 100 cps to 30 kc.

Step Attenuator, 0-40 db (1-db steps), Kay Electric 20-0.

50-ohm Detector, response flat to 300 mc.

A. Gain Check.

1. Interconnect equipment as in Fig. 1.

2. A sweep generator is desirable for observing the complete response curve; however, a c-w generator may be used if spot checks are satisfactory.

3. Set the generator for 0.5 volt rms output, 150 mc center frequency, and 300 mc sweep width.

4. Set the vertical gain of scope to approximately 0.2 v/cm.

5. Observe the amplitude of the detected response curve. This will be the maximum output reference level.

6. Without changing the control settings of the scope and signal generator, interconnect the equipment as in Fig. 2.

7. Starting with a full 40 db of attenuation, switch out attenuation until the scope trace is in the same position as the reference level. The amount of attenuation used indicates the gain of the Transifier 1024-A.

B. Range and Flatness Check.

1. Interconnect equipment as in Fig. 3.

2. Set the sweep generator to 150 mc center frequency, 300 mc sweep width, and about 10 mv output.

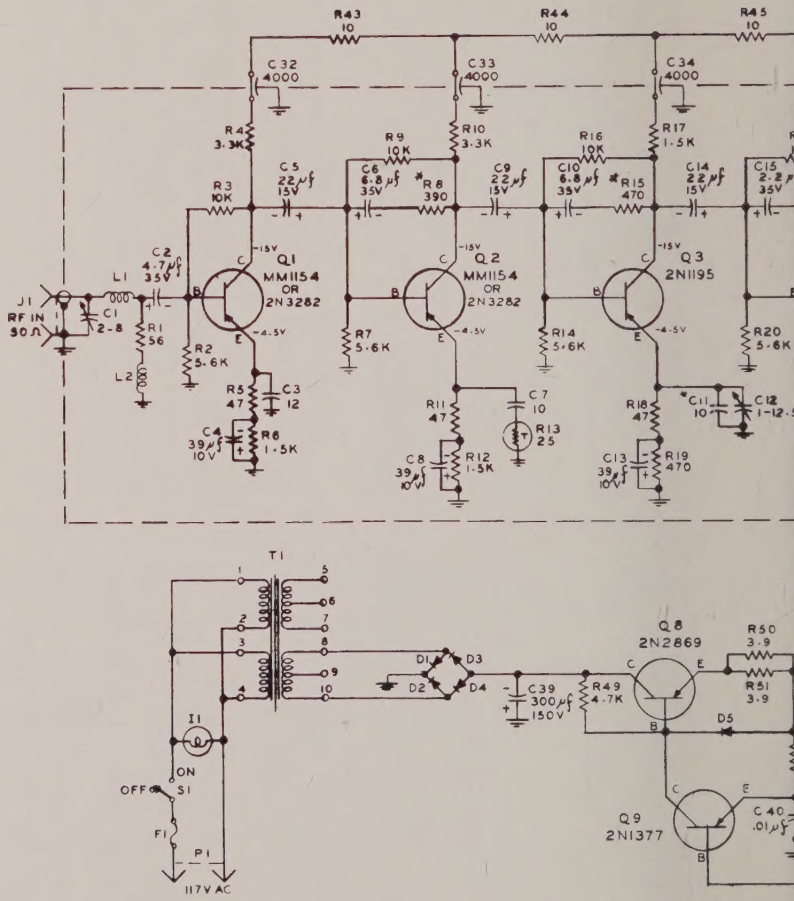
3. Set the scope gain to approximately 0.1 v/cm and position the trace in the upper portion of the scope screen.

4. Note the position of the most negative point on the response curve (above 500 cps).

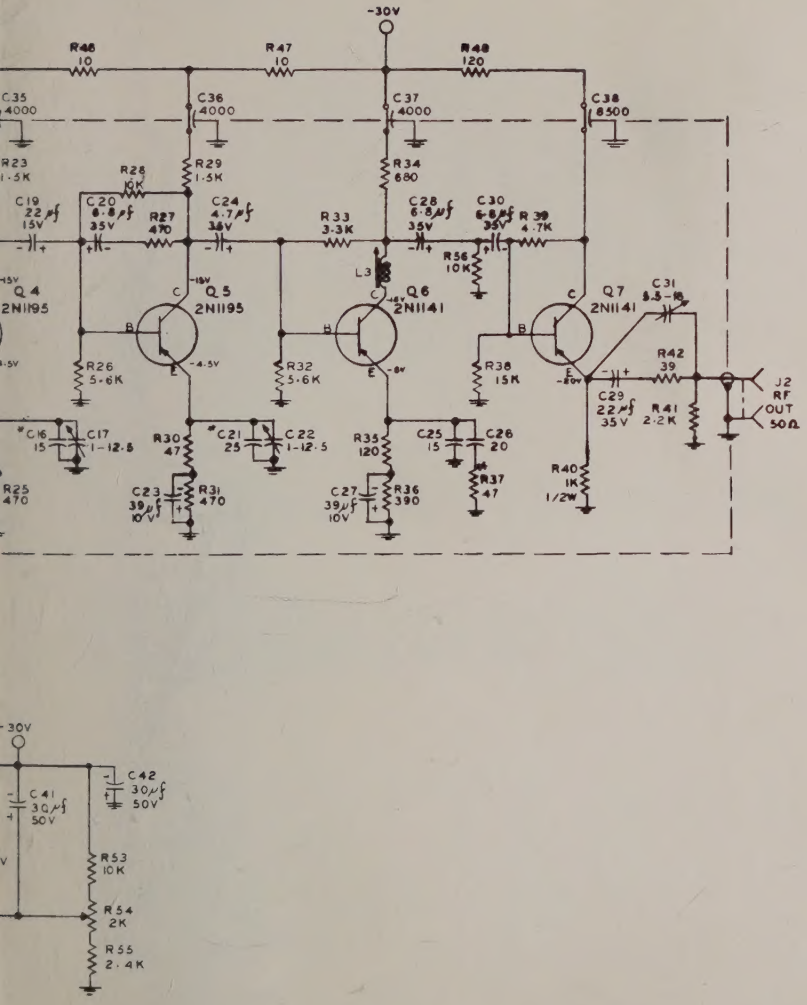
5. Throw in 1.0 db of attenuation and see that the most positive point on the attenuated wave does not exceed the position of the negative point on the normal response. (See Fig. 4.)

6. This indicates a flatness of ±0.5 db or better (500 cps to 300 mc).

7. If you replace the sweep generator with an audio oscillator, you can check for a ±3 db flatness down to 200 cps.



NOTE
UNLESS INDICATED OTHERWISE
ALL RESISTANCES ARE IN OHMS 1/2W EXCEPT SHIELDED SECTION
ALL CAPACITANCES ARE IN μf
* FACTORY SELECTED VALUE APPROX



SCHEMATIC 300 MC TRANSIFIER 1024-A

PARTS LIST FOR TRANSIFIER, SCHEMATIC C-8365E

DWG. SYMBOL NO.	DESCRIPTION	KAY PART NO.
	Capacitors: (All capacitors in uuf, 500 volts, unless otherwise indicated.)	
C1	2-8, ceramic trimmer	6358-12
C2	4.7 uf, 35V, electrolytic	6355-82
C3	12, silver mica	6359-54
C4	39 uf, 10V, electrolytic	6355-85
C5	22 uf, 15V, electrolytic	6355-84
C6	6.8 uf, 35V, electrolytic	6355-83
C7	10, silver mica	6359-53
C8	39 uf, 10V, electrolytic	6355-85
C9	22 uf, 15V, electrolytic	6355-84
C10	6.8 uf, 35V, electrolytic	6355-83
C11	Factory selected	
C12	1-12.5, ceramic trimmer	6358-13
C13	39 uf, 10V, electrolytic	6355-85
C14	22 uf, 15V, electrolytic	6355-84
C15	2.2 uf, 35V, electrolytic	6355-81
C16	Factory selected	
C17	1-12.5, ceramic trimmer	6358-13
C18	39 uf, 10V, electrolytic	6355-85
C19	22 uf, 15V, electrolytic	6355-84
C20	6.8 uf, 35V, electrolytic	6355-83
C21	Factory selected	
C22	1-12.5, ceramic trimmer	6358-13
C23	39 uf, 10V, electrolytic	6355-85
C24	4.7 uf, 35V, electrolytic	6355-82
C25	15, silver mica	6359-55
C26	20, silver mica	6359-57
C27	39 uf, 10V, electrolytic	6355-85
C28	6.8 uf, 35V, electrolytic	6355-83
C29	22 uf, 35V, electrolytic	6355-84
C30	6.8 uf, 35V, electrolytic	6355-83
C31	5.5-18, ceramic trimmer	6358-14
C32 thru C38	4000, ceramic trimmer	6356-5
C39	300 uf, 150V, electrolytic	6355-67
C40	0.01 uf, 100V, Mylar-paper	6899-12
C41 & C42	30 uf, 50V, electrolytic	6355-77
D1 thru D4	Diode, silicon 1N1692	6357-12
D5	Diode, silicon 1N461	6357-57
D6	Diode, Zener, 1M6.8Z10	6357-23
F1	Fuse, 1/10 A 250V, slow blow	6908-4
I1	Light indicator #51	1753
J1 & J2	Connector, coax, UG-290/U	8608
L1	Coil, special, fixed	L1/8365E
L2	Coil, special, with resistor R1	L2/8365E
L3	Coil, special, slug-tuned	L3/8365E
P1	Line cord, 3 wire	7166
Q1 & Q2	Transistor, MM1154	K-137
Q3 & Q4	Transistor, 2N1195 (4)	K-128-4
Q5	Transistor, 2N1195 (5)	K-128-5
Q6 & Q7	Transistor, 2N1141 (5)	K-127-5
Q8	Transistor, 2N2869	K-136
Q9	Transistor, 2N1377	K-134

DWG. SYMBOL NO.	DESCRIPTION	KAY PART NO.
	Resistors: (Unless otherwise indicated, resistors are fixed composition, ¼ watt, 10% tolerance.)	
R1	56 (with coil L2)	
R2	5.6 K	5621-C
R3	10 K	1031-C
R4	3.3 K	3321-C
R5	47	4701-C
R6	1.5 K	1521-C
R7	5.6 K	5621-C
R8	Factory selected	
R9	10 K	1031-C
R10	3.3 K	3321-C
R11	47	4701-C
R12	1.5 K	1521-C
R13	25, Thermistor	8982
R14	5.6 K	5621-C
R15	Factory selected	
R16	10 K	1031-C
R17	1.5 K	1521-C
R18	47	4701-C
R19	470	4711-C
R20	5.6 K	5621-C
R21	470	4711-C
R22	10 K	1031-C
R23	1.5 K	1521-C
R24	47	4701-C
R25	470	4711-C
R26	5.6 K	5621-C
R27	470	4711-C
R28	10 K	1031-C
R29	1.5 K	1521-C
R30	47	4701-C
R31	470	4711-C
R32	5.6 K	5621-C
R33	3.3 K	3321-C
R34	680	6811-C
R35	120	1211-C
R36	390	3911-C
R37	Factory selected	
R38	15 K	1531-C
R39	4.7 K	4721-C
R40	1 K, ½ watt	1021-E
R41	2.2 K	2221-C
R42	39	3901-C
R43 thru R47	10, ½ watt	1001-E
R48	120, ½ watt	1211-E
R49	4.7 K, ½ watt	4721-E
R50 & R51	3.9 K, ½ watt	3P75-E
R52	3.9 K, ½ watt	3921-E
R53	10 K, ½ watt	1031-E
R54	2 K, 2 watt pot, variable	105
R55	2.4 K, ½ watt	2421-E
S1	Switch, toggle, SPST	255-A
T1	Transformer, power	8195-A

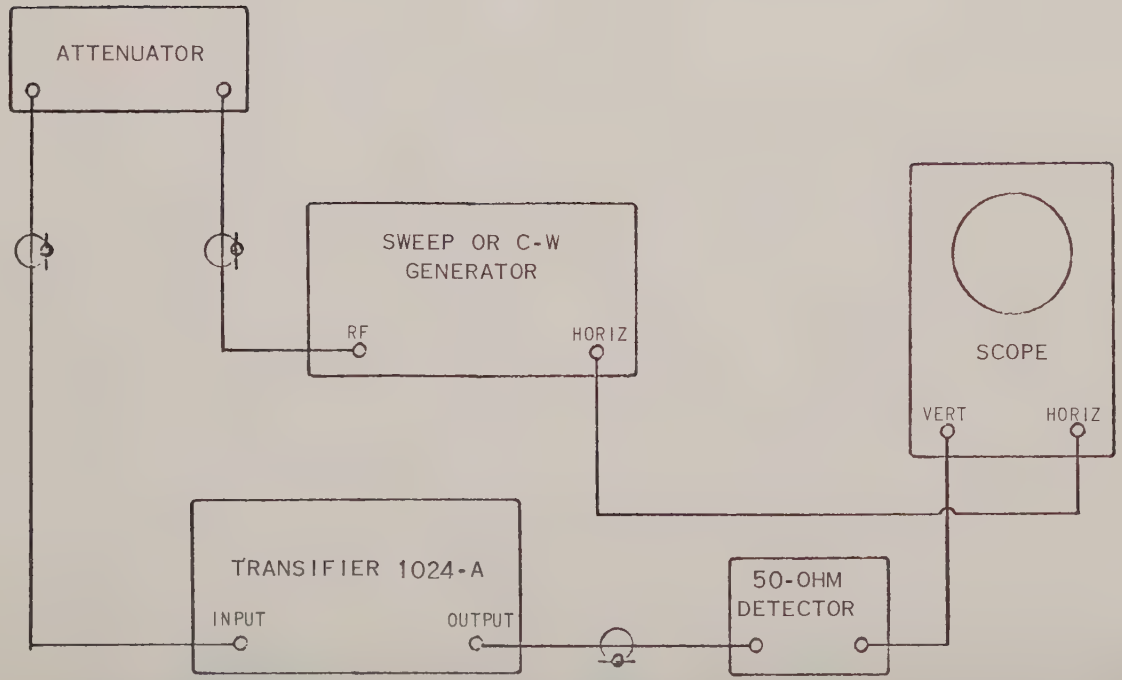


FIG. 2, AMPLIFIER GAIN CHECK

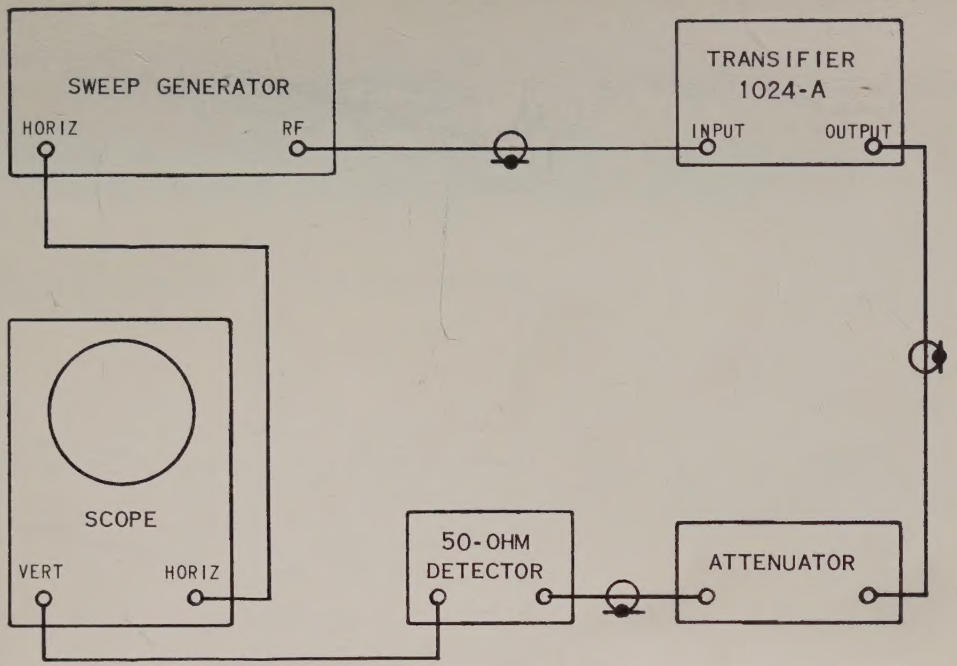
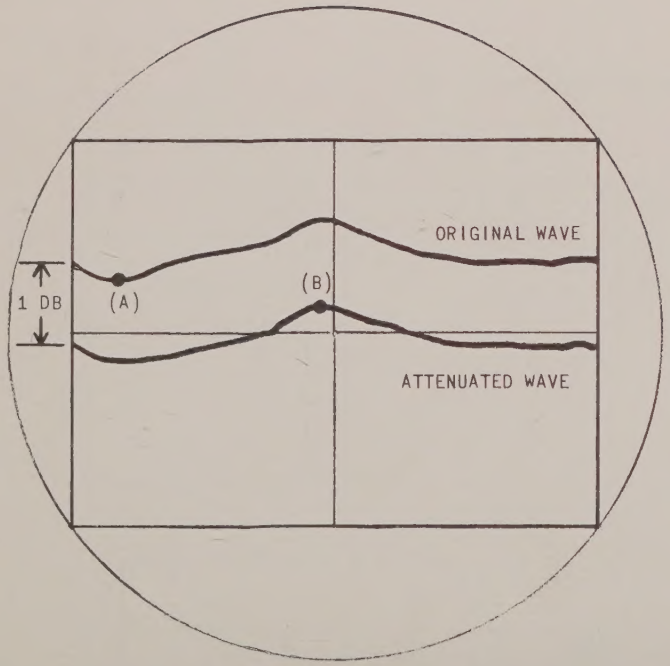


FIG. 3, FLATNESS CHECK



POSITIVE PEAK (B) OF ATTENUATED WAVE IS BELOW NEGATIVE PEAK (A) OF ORIGINAL WAVESHAPE.

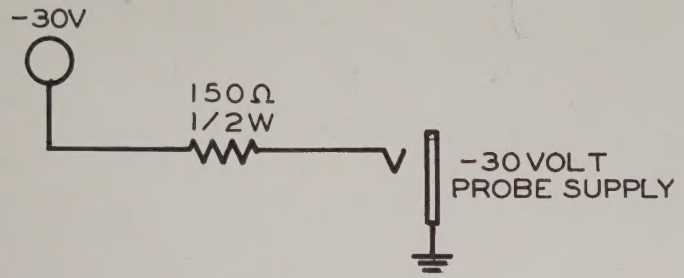
FIG. 4, FLATNESS CHECK WAVEFORMS

TRANSIFIER 1024A

ADDENDUM #900-8365F

This addendum concerns the addition of a jack on the rear of all units with serial numbers above 29394. This jack furnishes -30 volts, which is required for an accessory high impedance probe.

Add the following circuit to the -30 volt power supply:



Change the Parts List to read as follows:

J-3	Phono Jack (RCA Type)	-----
R56	10 K, $\frac{1}{4}$ watt	1031-C
R57	150Ω, $\frac{1}{2}$ watt	1511-E

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